

Remarks

Claims 16-29 are pending. Favorable reconsideration is respectfully solicited.

The present invention pertains to linear polymers which are useful as dispersants (plasticizers) in cementitious compositions. Substances such as casein and melamine and naphthalene formaldehyde condensates have been used for these purposes, but their performance is less than satisfactory for many applications. Applicants have discovered polymer compositions such are superior to known plasticizers, containing a copolymer of the formula of claim 1. These copolymers have a balance of hydrophobic, hydrophilic, and ionic groups which provide superior plasticizing properties. The polymers are addition polymers prepared by copolymerization of monomers a) through e), all of which bear but a single unit of ethylenic unsaturation. As a result, the polymers are linear polymers with, for example, carboxyl groups and sulfonate or sulfate groups, and both polyoxyethylene and polyoxy(higher)alkylene pendant groups.

Claims 16-23,25, and 27-29 have been rejected under 35 U.S.C. § 103(a) over Tahara et. al. EP 0448 771 A1 ("Tahara"). Applicants respectfully traverse this rejection. Tahara is directed to cement plasticizing compositions which certain crosslinked polymers, wherein the main chains of the polymers are crosslinked by divalent structural units $-R^1-C(=O)-O-R^2-$. Applicants disclose no such polymers. All applicants' polymers are linear polymers, because all their comonomers are mono-ethylenically unsaturated. Thus, the preparation of crosslinked polymers is not possible. Crosslinked polymer chains is a necessary part of the Tahara invention, as indicated by the abstract, the entire specification, and the claims. Thus, the polymers of Tahara and those of applicants are completely different.

Applicants claimed comonomers also must be present in the ranges specified, otherwise the advantageous properties as plasticizer in cement cannot be obtained. Tahara does not disclose or suggest these ranges, even without consideration of his crosslinking comonomers.

It should be noted that claim 16 has been amended to recite that the copolymer "consists essentially of" the recited monomers, thus not allowing any additional comonomers which materially affect the basic nature of the copolymer. Thus, minor amounts of comonomers such as ethylene, vinylacetate, etc., fall within the scope of the claims, but crosslinking monomers which produce a crosslinked structure which is far different from applicants linear structure, and which Tahara states are necessary for his polymer properties, are not within the scope of the claims.

With respect separately to claims 25 and 27-29, again, Tahara discloses only crosslinked polymers as cement additives, not non-crosslinked, linear polymers.

Withdrawal of the rejection of claims 16-23, 25, and 27-29 over Tahara under 35 U.S.C. § 103(a) is respectfully solicited.

Claims 24 and 26 have been rejected under 37 C.F.R. § 103(a) over Weitzel U.S. 6,127,283 in view of Tahara. Applicants respectfully traverse this rejection.

Weitzel is cited for showing spray drying of a vinyl ester/ethylene copolymer dispersion along with a water soluble copolymer containing sulfonic acid groups. However, the copolymer containing sulfonic acid groups disclosed by Weitzel contain no pendant oxyethylene or oxypropylene groups. Thus, the polymers in question are very, very different. There is no teaching or suggestion in either Weitzel or Tahara that such polymers might be useful as spray drying assistants. Moreover, as indicated previously, all the polymers of Tahara are crosslinked polymers which are very different both from the polymers disclosed by Weitzel as well as those disclosed by applicants. Thus, there is no teaching or suggestion that polymers containing polyoxyalkylene groups could be used by Weitzel in his process, and if the Tahara polymers were used, they are not the same as applicants' polymers anyway.

Withdrawal of the rejection of the claims over Weitzel in view of Tahara is respectfully solicited.

Applicants submit that the claims are now in condition for Allowance, and respectfully request a Notice to that effect. If the Examiner believes that further discussion will advance the prosecution of the Application, the Examiner is highly encouraged to telephone Applicants' attorney at the number given below.

Respectfully submitted,
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